

REMARKS

Claims 1-6 are all the claims pending in the application.

The Examiner maintains the 35 U.S.C. § 112, second paragraph, rejection of claims 1-6, as well as the 35 U.S.C. §101 rejection of claim 1. In addition, the Examiner rejects claims 1-3, 5 and 6 under 35 U.S.C. § 102(e) as being anticipated by Billström, and claim 4 under 35 U.S.C. § 103(a) as being unpatentable over (i.e., obvious from) Billström.

Applicant amends claims 1-3 and 6 more clearly to recite the features of Applicant's invention as disclosed in the specification. Applicant respectfully submits that these clarifying amendments also address and overcome the Examiner's §101 and §112, second paragraph, rejections. These amendment are not intended to narrow the scope of the original claims, but are presented explicitly to recite what was believed to have been implicitly required by the original claims. No estoppel is created.

Applicant respectfully traverses the Examiner's prior art rejection as follows.

Applicant's invention is directed to radio-communication systems which support multiple modulation schemes. In such systems, a local end-user communicating with her/his base station may experience interference from a distant end-user communicating with her/his respective base station when both the local end-user and the distant end-user are using the same communication channel and modulation type. Applicant's invention addresses such interferences by providing methods and a system where end-users, which are located in a domain of a cell in which the interference is lower than a predefined level, communicate with the base station by using a second, higher efficiency, modulation type over another communication channel.

In particular, Applicant's claimed invention provides methods (claims 1-5) and a system (claim 6) comprising unique combinations of method steps (claims 1-5) and a unique combination of features (claim 6), including *inter alia*: defining size and location of at least one domain in a cell based on the antenna directivity of distant end-users and on the relative positions of distant base stations and the base station which is being used for communication by the local end-user; and assigning a more efficient modulation type to the defined domain of the cell, in which the interference level is lower than a predefined interference level, so that the end-users located in the defined domain communicate with the base station using the more efficient modulation type over a second communication channel (see Applicant's independent claims 1 and 6).

Billström is in the field of radio access systems where terminals communicate with base stations via radio links, and provides a method which "allows for various modulation types, and takes into consideration ... the foreseen interference situations" (see *Id.*, Abstract; see also, col. 2, line 7-32). In particular, Billström discloses calculating carrier to interference ratio (C/I) and, if the received interference power density is not below a maximum, allocating to the terminal "the next more robust modulation type" (see *Id.*, col. 6, line 39 through col. 7, line 40).

In contrast to Billström, Applicant's claimed invention does not allocate modulation type based on C/I measured in predefined conditions, as required by Billström (see Billström, Figs. 4a and 4b). Instead, Applicant's claimed invention requires defining the size and location of at least one domain in the cell based on the antenna directivity of the distant end-users and on the relative positions of the distant base stations and the base station which is being used for communication by the local end-user (see Applicant's claims 1 and 6).

Therefore, Applicant's invention, as claimed in independent claims 1 and 6, as well as the dependent claims 2 and 3 (which incorporate all the novel and unobvious features of their base claim 1), is not anticipated by (i.e., is not readable on) Billström at least for this reason.

Applicant further submits that, according to Applicant's claimed invention, the zones (i.e., domains) in which the first modulation (e.g., 4 QAM) is used and the zones for which the second modulation (e.g., 16 QAM) is used can be defined at the initialization of the network based on the antenna directivity and on the positions of the base stations. (See, Applicant's specification at pages 6 and 7 describing a non-limiting, exemplary implementation where the zones are calculated independently of the presence of a terminal therein, i.e., the zones are defined at the initialization of the system.)

Therefore, according to Applicant's claimed invention, modulation used by a specific end-user during operation **depends only on the position of the mobile station**. If the end-user is in a zone defined at the initialization as a zone where the first modulation is to be used, then the first modulation will be used. Conversely, if the end-user is in a zone where the second modulation should be used, then the second modulation will be used.

Moreover, in a case of a moving terminal, the change from one modulation to another modulation is determined by detecting whether the position of the moving terminal changed from a zone having assigned first modulation to a zone having assigned second modulation. This change in position may be detected by, for example, a GPS system. (See, non-limiting, exemplary implementation described in Applicant's specification at page 7.)

In contradistinction to Applicant's claimed invention, Billström discloses a method where modulation type is assigned based on dynamically calculating carrier to interference ratio (C/I)

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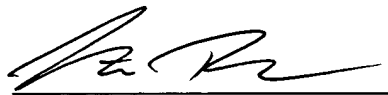
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regardless of the position of the mobile station. Thus, Billström does not teach or suggest Applicant's invention as claimed in independent claims 1 and 6. Accordingly, dependent claim 4, which incorporates all the novel and unobvious features of its base claim 1, would not have been obvious from Billström at least for the reasons set forth above.

In view of the foregoing, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Stan Torgovitsky
Registration No. 43,958

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

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